

From: [Huling, Scott](#)
To: [Tzhone, Stephen](#)
Cc: [Rauscher, Jon](#)
Subject: Arkwood 2014 tracer test report
Date: Wednesday, April 29, 2015 3:43:49 PM
Attachments: [Supplemental Tracer Test Results Critical Review 2015.docx](#)

Stephen,

Attached is an electronic file of a signed, hard copy memo that was mailed to you today re: the Arkwood site. After reviewing the new tracer study document, there were several technical matters identified that should probably be considered in the overall assessment of an appropriate ground water remedy for the site. Some of these matters are already on your radar and we have discussed them previously. Call anytime if you would like to discuss any of these matters further.

I noticed Jon's comments suggested that the presence of dye in the Cricket Pond indicates that the New Cricket Spring (NCS) did not fully capture the tracer plume emanating from the site. I agree with this statement and that it was under-played. Apparently, the effluent from the NCS water treatment plant is diverted (pumped or gravity?) to the Cricket Pond. It seems that the parties may suggest that it accidentally came from residuals via pipeline from the NCS. My approach was to ask the parties to elaborate on this matter. One issue to assess in more detail, assuming it is not attributed to a leak in the pipe, is what concentration in ground water seeping into the pond would be required to achieve 159 ppb dye in the pond. Assuming significant dilution took place in the pond (i.e., size of the pond, flow of the tracer dye, etc.), this concentration of tracer could indicate a significant bypass of the ground water from the NCS. Other lines of evidence are presented supporting lack of overall capture by the NCS.

The main issue I have been trying to garner some support on is that the contaminated ground water transport is complex, and there appears to be multiple transport pathways from the site, yet it is assumed that all of the contaminated ground water is naturally captured and subsequently treated at the New Cricket Spring. This is just too simple of a hydrologic conceptual model given all the site complexities (i.e., waste and hydrogeologic heterogeneities, multi-directional ground water fate and transport pathways, multi-waste management areas, inappropriate tracer studies in '91, a hydrologic water budget that doesn't add up, etc.).

Scott

Scott G. Huling, Ph.D., P.E.
Environmental Engineer
U.S. Environmental Protection Agency
Robert S. Kerr Environmental Research Center
P.O. Box 1198 (or, 919 Kerr Lab Drive)
Ada, OK 74820
Phone: (580) 436-8610; Fax: (580) 436-8615
e-mail: Huling.Scott@epa.gov
website: <http://www.epa.gov/ada/research.html>



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